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Proceedings of the United States National Museum

SMITHSONIAN INSTITUTION • WASHINGTON, D.C.

Volume 123 1967 Number 3620

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SMITHSONIAN PRESS

Proceedings of
the United States
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Neotropical Microlepidoptera, XV[1]

Review of Genus *Thioscelis* (Lepidoptera: Stenomidae)

By W. Donald Duckworth

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This paper represents part of a continuing study of the Neotropical moths of the family Stenomidae and presents for the first time, since the genus *Thioscelis* Meyrick was established in 1909, illustrations, descriptions, distributions, and keys to all the known species. In addition, during the course of the study, three new species were encountered and are described herein.

[1] Prepared with the aid of a National Science Foundation Grant. Previous parts of this same series are: I and II, Clarke, 1962, Proc. U.S. Nat. Mus., vol. 113, no. 3457, pp. 373–388; III, Clarke, 1964, ibid., vol. 115, no. 3480, pp. 61–84; IV, Duckworth, 1964, ibid., vol. 116, no. 3497, pp. 97–114; V, Obraztsov, 1964, ibid., vol. 116, no. 3501, pp. 183–196; VI, Clarke, 1964, ibid., vol. 116, no. 3502, pp. 197–204; VII, Obraztsov, 1966, ibid., vol. 118, no. 3527, pp. 221–232; VIII, Duckworth, 1966, ibid., vol. 118, no. 3531, pp. 391–404; IX, Obraztsov, 1966, ibid., vol. 118, no. 3535, pp. 577–622; X, Duckworth, 1966, ibid., vol. 119, no. 3540, pp. 1–6; XI, Obraztsov, 1966, ibid., vol. 119, no. 3543, pp. 1–12; XII, Duckworth, 1967, ibid., vol. 122, no. 3585, pp. 1–38; XIII, Duckworth, 1967, ibid., vol. 122, no. 3590, pp. 1–8; XIV, Clarke, 1967, ibid., vol. 122, no. 3591, pp. 1–8.

Although the moths composing the genus *Thioscelis* are among the largest and most striking in the family Stenomidae, they are relatively rare in collections. Thus, the distributional data presented is fragmentary and, at best, merely reflects the state of current knowledge concerning the genus. Certainly a great deal more collecting must be done before any reasonable speculations can be made concerning the zoogeography of the group. Also, host plant records and other life cycle data are completely lacking at this time, emphasizing once again the critical need for increased field activity in the Neotropics.

The author wishes to acknowledge with thanks the cooperation and aid of the following persons who have allowed him to study the types and specimens in their charge: Mr. P. E. S. Whalley and Mr. Allan Watson of the British Museum (Natural History); Dr. J. G. Franclemont of Cornell University; and Dr. Fritz Kasy of the Naturhistorisches Museum, Vienna.

The author also wishes to acknowledge the assistance of Mrs. Sandra Duckworth in all phases of the study. The map and line drawings were prepared by Mr. André Pizzini and the photographs by Mr. Jack Scott.

Work on this paper was aided in part by the National Science Foundation on Grant GB–1800.

History

The genus *Thioscelis* was described by Meyrick (1909, p. 29) for a new species, *T. directrix*, that he described from two specimens collected in Peru. Walsingham (1912, p. 153) listed the genus for Central America based on a specimen from Costa Rica in the U.S. National Museum determined by A. Busck as *T. directrix*. Meyrick (1932, p. 287) described a second species, *T. geranomorpha*, from Brazil. Busck (1934, p. 6) listed *Thioscelis* and the two described species in the Stenomidae part of the "Lepidopterorum Catalogus" series. Clarke (1955, pp. 380–381) selected a lectotype and illustrated the wings and male genitalia of *T. directrix* in his study of the Meyrick types in the British Museum (Natural History).

Genus *Thioscelis* Meyrick

Thioscelis Meyrick, 1909, p. 29.

Type-species: *Thioscelis directrix* Meyrick, by monotypy.

Head rough, lateral tufts spreading. Labial palpus long, recurved, extending above head; second segment with appressed scales; apical segment acute at apex, slightly shorter than second. Foreleg short, tibia much dilated with dense scales; midleg normal, tibia covered

with dense scales; hindleg greatly elongated, tibia very long, densely scaled dorsally and ventrally, tarsus longer than tibia, thickened with dense scales dorsally, tufted toward apex. Forewing with costa arched at base, straight beyond, apex square, termen straight, tornus rounded; with 12 veins, 2–5 approximate at base, 6–9 approximate at base, 7 to termen, 11 from middle of cell. Hindwing broader than forewing; with 8 veins, 3 and 4 connate, 5 approximate to 3 and 4, 6 and 7 approximate at base.

Male genitalia: Uncus long, somewhat recurved; gnathos complete, apex acute, hooklike; subscaphium absent; harpe with variously shaped ampulla clothed with short, heavy spines, furcate setae present; anellus large, sheathlike, with two digitate, setiferous lateral lobes; aedeagus simple, cornuti absent.

Female genitalia: Ostium bursae sclerotized; ductus bursae membranous; inception of ductus seminalis near ostium; corpus bursae membranous, with signum a small, lightly sclerotized spot.

This genus is recognized easily owing to the large size of the moths that compose it and the extreme development of their hindlegs. Meyrick (1909, p. 30) first noted the unusual hindleg length in his remarks on *T. directrix:* "A singular insect; the actual length of posterior leg is, femur 3 mm., tibia 14 mm., tarsus 24 mm.; total 41 mm." Inasmuch as biological data is lacking completely for this genus, it is impossible to determine the function or value of such long and seemingly awkward legs at this time. It is hoped that this publication and others, either published or to be published, on the genera composing the family Stenomidae will stimulate workers in Latin America to conduct biological studies that will help elucidate such problems.

The possibility that the legs of the moths in this genus might provide characters useful at the specific level was investigated during the course of this study. The results achieved were not conclusive owing primarily to the lack of sufficient numbers of specimens with intact legs. The great length of the hindlegs, three times the length of the abdomen in some species, results in frequent breakage or complete loss by handling, shipping, etc. As a result, the data gathered are considered to be too incomplete for presentation at this time.

The genitalia provide a number of distinguishing characters for the genus. The most outstanding male character is the development of a prominent ampulla bearing short, heavy setae. The size and shape of this ampulla varies among the species and provides reliable characters for their recognition. Because the female of only one species, *T. geranomorpha,* is known, it is impossible to determine the characters of generic significance in the female genitalia.

Key to Species of *Thioscelis*

BASED ON MACULATION

1. Hindwing ochreous shaded with gray 2
   Hindwing dark brown to black 4
2. Forewing with subterminal line a series of black dots; with two black spots at apex 3
   Forewing with subterminal line a solid black line; without spots at apex. **T. lipara,** new species
3. Forewing with subterminal line with strong outward arch. **T. directrix** Meyrick
   Forewing with subterminal line with only a slight outward arch. **T. whalleyi,** new species
4. Forewing light brown; subterminal line a solid black line. **T. geranomorpha** Meyrick
   Forewing dark brown; subterminal line a faint series of black dots. **T. fuscata,** new species

BASED ON MALE GENITALIA

1. Ampulla rounded at apex; apex of gnathos slender 3
   Ampulla acute at apex, falciform; apex of gnathos broad. **T. lipara,** new species
2. Harpe with apical region longer than ampulla 4
   Harpe with apical region equal or slightly longer than ampulla; ampulla large, clublike with tendency for slight counterclockwise twist at apical half . . . . . **T. directrix** Meyrick
3. Ampulla slender, digitate . . . . . **T. fuscata,** new species
   Ampulla broad, expanded basally . . . . . **T. whalleyi,** new species

Thioscelis directrix Meyrick

FIGURES 1, 2, 5, 6; PLATE 1 (FIG. 1); MAP 1

Thioscelis directrix Meyrick, 1909, p. 30.

Alar expanse 54–63 mm.

Antenna dark brown. Head light brown; second segment of labial palpus black externally on basal half, apical segment dark brown anteriorly. Legs light brown, femora white, midtibia white, yellow above toward base, hind tibia yellow orange dorsally, white ventrally, separated by a dark brown lateral line, mid- and hind tarsi dark brown to black. Thorax light brown dorsally, white ventrally. Abdomen yellow dorsally, white ventrally. Forewing light brown, paler and whitish tinged at base of costa; costal edge ochreous basally, dark brown beyond; an area of ill-defined black spots on median third near costa; outwardly curving transverse subterminal line of black dots from costa to dorsum; two ill-defined black spots at apex; a terminal line of black dots from apex to dorsum. Cilia ochreous, shaded with brown from midtermen to apex. Hindwing ochreous heavily overlayed with gray. Cilia ochreous tinged with yellow orange.

Male genitalia (slide WDD 3661): Uncus slightly recurved, somewhat concave ventrally, apex variable, generally with slight notch but

occasionally may be forked; apex of gnathos slender, acute; harpe with apical region equal or slightly longer than ampulla, ampulla large, clublike with tendency for slight counterclockwise twist at apical half.

Female genitalia: Unknown.

Type: In the British Museum (Natural History).

Type-locality: El Porvenir, Peru.

Distribution: PERU: El Porvenir, south Peru, 3300 ft. (no date); Sani Beni, Lima (August); north Peru (no date); Peru (no date); Huancabamba, east Peru, 6000–10,000 ft. (no date). BOLIVIA: Chimate, 760 m. (September). COSTA RICA: Tuis (May, June).

This species is recognized easily by the large clublike ampulla in the male genitalia. In maculation it is very similar to the following species *T. whalleyi*, the principle difference being the more pronounced outward curviture of the subterminal line on the forewing.

Walsingham (1912, p. 153) listed *T. directrix* as occurring in Central America on the basis of a specimen in the U.S. National Museum determined by A. Busck. Meyrick (1932, p. 288) questioned this record, stating: "Walsingham (Biol. C.-Am. iv, 153) records *T. directrix* from Costa Rica, on the authority of Mr. Busck; it is more probable geographically that the species intended is *geranomorpha*." I have studied the specimen in question and compared it with the types of both *T. directrix* and *T. geranomorpha* and find that Busck's determination was correct. The distribution pattern this produces is not uncommon in the family and actually is more feasible geographically than that suggested by Meyrick.

Thioscelis whalleyi, new species

FIGURES 4, 7, 8; PLATE 1 (FIG. 2); MAP 1

Alar expanse 50–52 mm.

Antenna, head, legs, thorax, and abdomen as for *T. directrix*. Forewing as in *T. directrix* except subterminal line straighter, arising nearer apex on costa. Hindwing as for *T. directrix*.

Male genitalia (slide WDD 3660, paratype): Uncus slightly recurved, somewhat expanded at apex; gnathos as for *T. directrix;* harpe with apical region longer than ampulla, ampulla short, expanded basally on ventral margin.

Female genitalia: Unknown.

Type: In the United States National Museum, no. 69513.

Type-locality: Campo Bello Rio, Brazil.

Distribution: BRAZIL: Campo Bello Rio, Goiaz (January); Rio de Janeiro (January).

Described from the male holotype: "No. 9, Campo Bello Rio, Brazil, Jan. 30, 1929"; one male paratype: "No. 9, Campo Bello Rio,

Brazil, Jan. 10, 1931"; three male paratypes: "(J. F. Ziran), No. 9, Rio de Janeiro, 31–1–29, 1–3–27, 28–1–30."

The species is related closely to the preceeding one, *T. directrix;* however, the short ampulla expanded basally in the male genitalia serves to distinguish *T. whalleyi* from all other species.

The maculation distinction between the two species was described in the remarks on *T. directrix.*

I take great pleasure in naming this species for my friend and colleague Mr. P. E. S. Whalley, lepidopterist at the British Museum (Natural History), who has been of great aid in my study of the family Stenomidae.

Thioscelis lipara, new species

FIGURES 9, 10; PLATE 1 (FIG. 3); MAP 1

Alar expanse 53 mm.

Antenna light brown. Head as for *T. directrix.* Legs as in *T. directrix* except hind tibia with less pronounced dark brown lateral line. Thorax and abdomen as for *T. directrix.* Forewing ochreous, overlaid with light brown; a small, distinct S-shaped black spot on median third near costa surrounded by a small patch of ill-defined black dots; transverse subterminal and terminal lines complete rather than composed of dots as in previous two species, only slightly curved. Cilia ochreous. Hindwing ochreous lightly overlaid with gray. Cilia ochreous.

Male genitalia (slide WDD 3658, type): Uncus recurved, swollen at apex, with distinct apical groove; apex of gnathos broad, acute; harpe with apical region equal to or slightly shorter than ampulla, ampulla falciform, outwardly curved.

Female genitalia: Unknown.

Type: In the British Museum (Natural History).

Type-locality: Fonte Boa, Amazonas, Brazil.

Distribution: Known only from the type-locality.

Described from the male holotype (S. M. Klages), Fonte Boa, Amazonas, May 1906.

This species is distinguished easily by the falciform ampulla and broad apex of the gnathos in the male genitalia. On maculation it differs in having a small, distinct S-shaped black spot on the median third of the forewing near the costa.

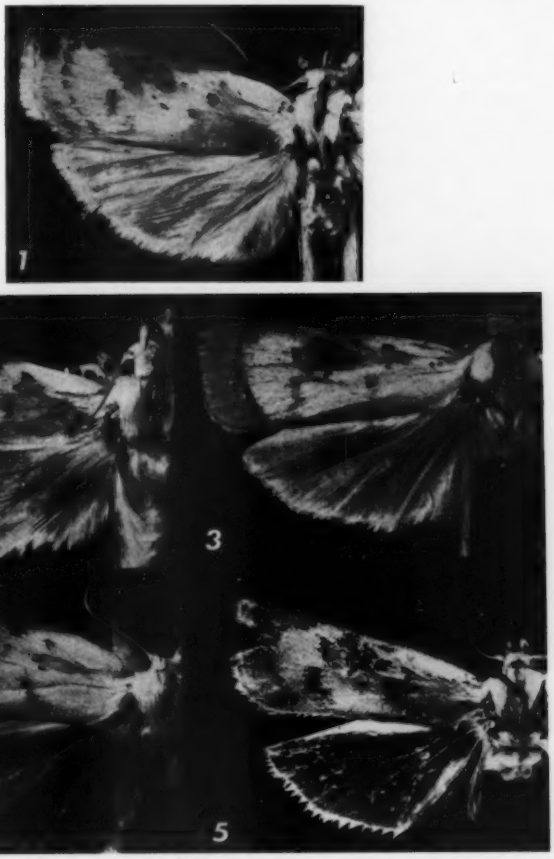
Thioscelis geranomorpha Meyrick

FIGURE 3; PLATE 1 (FIG. 4); MAP 1

Thioscelis geranomorpha Meyrick, 1932, p. 287.

Alar expanse 55–60 mm.

Antenna light brown, becoming darker apically. Head light brown, face whitish; second segment of labial palpus light brown with dark



Left wings: 1, *T. directrix* Meyrick; 2, *T. whalleyi*, new species; 3, *T. lipara*, new species; 4, *T. geranomorpha* Meyrick; 5, *T. fuscata*, new species.

brown scaling basally, apical segment dark brown. Legs as for *T. directrix*. Thorax light brown. Abdomen yellow dorsally, base of segments 2–4 irregularly gray; white ventrally. Forewing narrower apically than for *T. directrix*, apex rectangular; light brown irregularly shaded with darker scaling, maculation as for *T. directrix* except subterminal and terminal transverse lines solid, irregular black shading at apex. Cilia light brown. Hindwings dark brown to black. Cilia light brown with a dark brown median shade.

Male genitalia: Unknown.

Female genitalia (slide WDD 3325, type): Lamella antevaginalis broadly notched on posterior margin; lamella postvaginalis with deep median groove.

Type: In the Naturhistorisches Museum, Vienna, Austria.

Type-locality: Petropolis, Brazil.

Distribution: BRAZIL: Petropolis (March); São Paulo (March).

This species is separated readily from all others in the genus on the basis of wing shape and maculation. The subterminal line on the forewing is solid, and the apex is much more rectangular than in the other species. Since the females of the other species are not known, it is impossible to compare the characters found in the genitalia.

***Thioscelis fuscata*, new species**

FIGURES 11, 12; PLATE 1 (FIG. 5); MAP 1

Alar expanse 46 mm.

Antenna light brown basally, dark brown beyond. Head, legs as for *T. directrix*. Thorax dark brown dorsally, tegula lighter. Abdomen as for *T. directrix*. Forewing dark brown, lighter on costa basally, median third with ill-defined black spotting; subterminal transverse line a faint series of black dots; terminal line barely distinguishable. Cilia dark brown, somewhat lighter basally. Hindwing dark brown to black. Cilia as for forewing.

Male genitalia (slide WDD 3566, type): Uncus short, recurved, enlarged at apex; apex of gnathos slender at apex, acute; harpe with apex much longer than ampulla; ampulla small, slender, digitate.

Female genitalia: Unknown.

Type: In the British Museum (Natural History).

Type-locality: La Oroya, Rio Inambari, Junín, 3100 ft., Peru.

Distribution: Known only from the type-locality.

Described from the male holotype (G. Ockenden), La Oroya, R. Inambari, Peru, September 1904, 3100 ft., dry seas.

The small, slender, digitate ampulla in the male genitalia readily distinguishes this species from all others in the genus.

The dark brown fore- and hindwings is the most distinctive superficial character.

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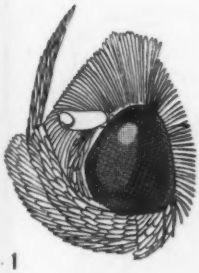
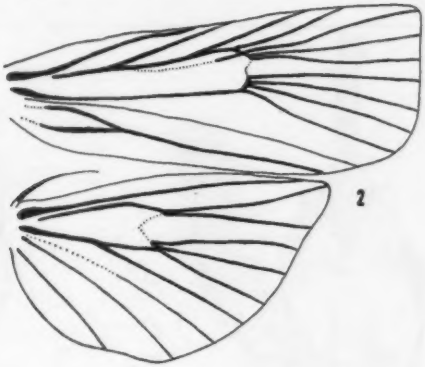
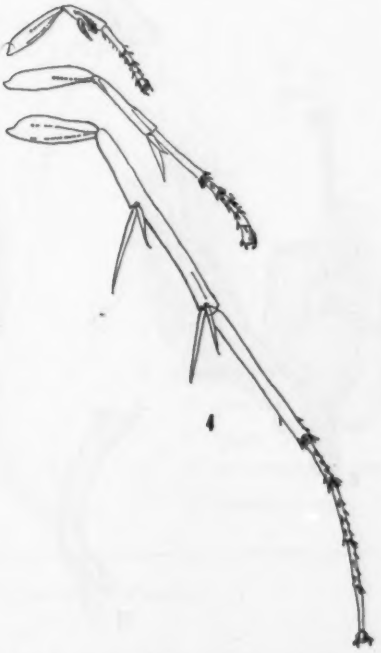
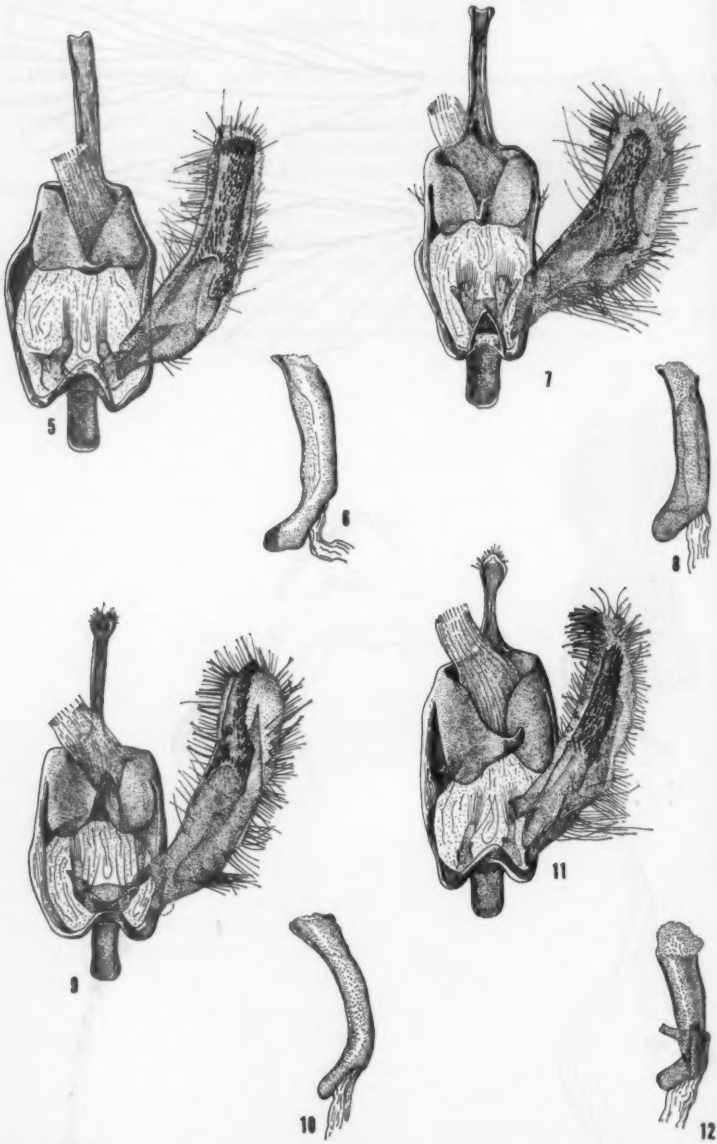






FIGURES 1–4.—*T. directrix* Meyrick: 1, lateral view of head; 2, wing venation. *T. geranomorpha* Meyrick: 3, ventral view of female genitalia. *T. whalleyi*, new species: 4, legs (scales removed).



FIGURES 5–12.—Ventral view of male genitalia (aedeagus removed): 5, *T. directrix* Meyrick; 7, *T. whalleyi*, new species; 9, *T. lipara*, new species; 11, *T. fuscata*, new species. Aedeagus: 6, *T. directrix* Meyrick; 8, *T. whalleyi*, new species; 10, *T. lipara*, new species; 12, *T. fuscata*, new species.

Map 1.—Distribution of species.

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